

# **At what cost to whom? \$ \$** **Health Care and other Costs** **associated with Trauma** **Exposure and PTSD.**

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# Objectives

- Summarize economic consequences of trauma exposure and PTSD
  - Costs and impact on health utilization of detection/ non-detection
  - Introduce other costs
  - Suggest future directions, gaps
- Raise awareness
  - Methodology
  - Values/Policy

# Introduction

- For years, immediate and long-term **MENTAL** health effects of trauma have been documented as deleterious
- More recently, the long-term effects of trauma/PTSD on PHYSICAL health have been established
  - Somatization
  - Direct Effects
  - Risky Behaviors/ Lack of Prevention

# Role of physicians has changed with respect to PTSD

- Primary care physicians provide 60% of the total mental health care, yet less than 10% of women with childhood victimization histories share this information with their physicians (**Walker et al. 1993**)
  - Primary care physicians have been shown to be more skilled at recognizing physical symptoms than emotional complaints
  - SCREENING –increasing awareness of trauma (like depression)--- this has also led to the focus on cost

# What are Costs?

- Intangible: Cost of Pain, Distress, Relationship Difficulties
- \*Tangible: Property losses, productivity losses, medical costs

# Known “Intangible” Costs of Trauma/ PTSD

- Psychological disorders or increased risk for psychological disorder (Norris' work, Kessler, Breslau)
- Risk for trauma exposure in future (Whitfield, Anda, Dube & Felitti, 2003; Kessler)
- Decreased health or quality of life (e.g. Edwards et al,
- Relationship problems (e.g. Cook, Riggs, Thompson, Coyne & Sheikh, 2004)
- Educational attainment (Magdol, Moffitt, Caspi, Newman, Fagan, Silva, 1997,

# General Cost Issues

- Costs to whom?
  - What system or subsystem?
    - individual vs. family,
    - medical care vs. ER services
    - medical vs. criminal justice
- Over what time period?
  - Short term vs. long term

# **Medical costs and health care utilization**

# Context of Medical Costs

Perspective	Direct	Indirect	Other
Health Care System	Tests Medication Supplies Salaries of providers Expenses of operating facility	Infrastructure Overhead <ul style="list-style-type: none"> <li>■ Telephone service</li> <li>■ Transcription service</li> <li>■ Utilities</li> <li>■ Fixed costs of production</li> <li>■ Mortgage</li> </ul>	(Opportunity Cost)
Patient	Payment of appointment Payment for medication or test	Lost work time (waiting time) Transportation costs Extra childcare	(Opportunity Cost)
Society	Publicly funded health insurance Emergency Care for uninsured patients	Days off work Decreased productivity Loss of employment by patient Loss of employment by family Family burdens	(Opportunity Cost)

# Challenges of Cost/Utilization

- Self-report data is inaccurate
- Skewed data
- More than one visit is correlated (autocorrelations)- violating independence assumption
- Need to be adjusted for chronic disease & age

# **What is cost? To whom? Over what time period?**

- What is a cost?
  - Direct or indirect?
  - Charges vs. costs
  - Are intangible costs in it?
- Cost to whom?
  - an organization? Division of an organization?
- Over what time period?
  - Cost: Early prevention vs. Later disease
  - Cost per life saved?
  - Cost per year of life gained?

# **First wave: High health care utilization among trauma survivors**

- **Sexual Assault** (e.g., Felitti, 1991, Golding et al, 1988, Moeller, Bachman & Moeller, 1993, Walker et al., 1992)
- **Child Sexual Abuse Survivors** (Finestone et al., 2000)
- **Battered Women – ER** (Stark & Flitcraft, 1988)
- **Veterans with PTSD** (Schnurr, Ford et al, 2000, Dekin et al., )

# Utilization $\neq$ Cost

- Utilization depends on time period
  - Over vs. under utilization
- Utilization data does not generalize across settings
  - Different costs
  - Utilization depends on access/ gate-keeping

# Empirical Support for High Health Care Costs/Utilization

Several studies suggest high costs/utilization among trauma survivors, but have some shortcomings (e.g., Marshall, Jorn, Grayson & O'Toole, 1988)

5 methodologically sound studies which show clear increases in health care costs and utilization for trauma survivors

1. Standardized assessment
2. Automated or systematic record review
3. Sufficient power

# Scholle, Rost, & Golding (1998)

- Examined 1 year services usage among 303 depressed women who were or were not physically abused as adults.
- Physically abused women had significantly more severe depressive symptoms, physical illnesses, and psychiatric co-morbidities (including PTSD).
- Controlling for sociodemographic and severity of illness factors, physically abused depressed women were more likely to utilize physical healthcare, but less likely to utilize mental healthcare.

# **Koss, Koss, & Woodruff (1991)**

- Examined health care costs and physician visits among 316 female crime victims and 74 non-victims

## Victimized women

- reported more distress and less well-being, made twice as many physician visits, and had 2.5 times more outpatient costs.
- Significantly more visits and costs for each level of crime victimization severity.
- Criminal victimization strongest predictor of visits and costs.

# **Arnow, Hart, Scott, Dea, O'Connell, & Taylor (1999)**

Examined relationship between CSA, psychological distress, and medical utilization among 206 women HMO members in waiting room. 4 groups: CSA, CSA-distressed, distressed and control

- CSA-distressed and distressed only women used significantly more non-psychiatric services than non-distressed groups.
- CSA-distressed women used significantly more ER visits than other three groups, which was related to pain complaints.
- CSA-non-distressed women did not differ from controls in non-psychiatric utilization.

# Walker, Unutzer, Rutter, Gelfand, Saunders, VonKorff, Koss, & Katon (1999)

- Examined differences in annual HMO health care costs in women with and without histories of childhood sexual, emotional, or physical abuse and neglect.
- Found that women with such histories exhibited modestly more health care costs per woman, per year (roughly a couple hundred dollars).
- Cost differences are mainly found in primary care, emergency room, laboratory and pharmacy utilization
- However, when looking at the annual HMO population, this increase it would cost > \$8,000,000 per year (prevalence rate\*pop\*cost difference).

# Walker, Katon, Russo, Ciechanowski, Newman, & Wagner (2003)

- Examined relationship between level of PTSD symptoms and health care costs for 1225 females of an HMO.
- Found that women with PTSD symptoms had significantly higher health care costs, even after controlling for depression, chronic medical illness, and demographics.
  - For everything but Emergency and inpatient care
- High PCL showed 104% increase over low PCL

# Health Care Costs Summary

- PTSD symptoms and trauma exposure are associated with increased health costs in female adults and suggestive for children and head injury
- Key question: Will screening, referral, & effective tx reduce health care costs?
  - suggests the importance of primary care interventions

# **Children and health care costs**

# Pediatric Trauma Costs

- Even less data
- GAO report pointed out gaps in insurance for children's mental health trauma services
  - 88% have insurance
    - 4% private insured (3 million) have limits or PTSD
  - Gaps in services

# **Pediatric Trauma: Intended vs. Unintended Injury**

- 1994 PICU services no differences in cost-charge ratios across the PICU for child abuse vs. other (Domingues, Chalom, & Costarino, 2001)
- although child mortality was proportionally higher for child abuse (35.3% VS. 5.8%)

# Pediatric child abuse & head trauma

## ■ No (1)

- Penn inpatients in 1995 ages 0-19, no differences between 348 maltreatment (22% self-inflicted) and 1052 unintentional in mean and median total **charges** (Irazuzta, McJunkin, Danadian, Arnold & Zhang, 1997)

## ■ YES (5)

- National Pediatric Registry – Higher LOS among the 1997 abused (9.3 days) vs. 16831 non abused (3.8 days) – no costs (DiScala, Sege Li, Reece, 2000)
- Higher mean charges (\$5289 vs. 1913) but no difference in Length of Stay for 13 abused vs. non-abused PICU clients – severity adjusted cost comparison (Duhaime, Alario, Lewander et al, 1992)

# Pediatric child abuse & head trauma

## ■ YES (5)

- 76 abused kids (ages 0-14) had longer LOS (14.4 days vs. 6.8 days) and higher mean charges (20,360 vs. 7791) than did 3296 non-abused kids (Pecklet, Newman, Eichlberget et al, 1990)
- Among a small sample of TBI pediatric submissions, , total costs and daily costs were significantly higher in the CA patients (Domingues, Chalom, & Costarino, 2001)
- Among Colorado hospitals records of pediatric head trauma 1993-2000, inflicted head trauma stayed 53% longer (2 days) and mean charges were 89% higher (\$4232 more) than non-intentional injuries controlling for age and severity (Libby, Sills, Thurston & Orton, 2003)

# Emerging data for kids

- Although confounds, most studies suggest increased cost for abuse-related head injury vs. non-intentional injury
  - Careful about age, disease confounds
  - Need to extend to other trauma-related conditions

## **Risk Management Claims Payments (In thousands) after OKC**

July 1	Health Care	Change	Compensation	Change
FY 1993	\$23,898		\$4,071	
FY 1994	\$25,473	6.6%	\$4,394	
<b>FY 1995</b>	<b>\$26,489</b>	<b>4.0%</b>	<b>\$5,365</b>	<b>22.1%</b>
FY 1996	\$24,793	-6.4%	\$5,041	-6%

Source: City of Oklahoma City, Official Statement, March 5, 1996, b-33 and Official Statement, May 5, 1998. B-32

# Dilemma for Health and Trauma

- See the connection but what to do?
  - Pro-actively develop screening and implement effective psychological programs making to chronic disease management
    - Problem: Disenrollment rates dilute the financial value of the program
  - Downside – insurance could be denied or decreased

# **Criminalization Costs**

# Context of Crime Costs

Perspective	Costs of Crime	Costs of Society's Response to Crime
Potential Victim	Fear of Crime Precautionary expenditures	Fear of Crime Precautionary expenditures
Victim/Family	Direct property losses Health care Victim services Lost workdays Lost housework Pain suffering/QOL Loss of affection Death Legal costs with tort Second generation costs	Crime Justice System- victim time
Offender/Family	Crime Justice System– legal fees Victim compensations programs Lost wages	Crime Justice System– legal fees Victim compensations programs Lost wages
Society	Direct property losses Health care Victims services Lost productivity Second generation costs	Crime Justice System– costs for prosecutes, jury witness, incarceration Victim Services Offender lost tax revenue Justice costs – constitutional protections

# **NIJ** (Miller, Cohen & Wierseman, 1996)

- Victim Expenses

- Reduced productivity at work, home, school
- Non-monetary losses – fear, pain suffering, QOL

- Took NCVS and adjusted costs based on norms

# Overall findings

- Personal crime costs \$105 billion annually in medical costs, lost earnings, & Victim Assistance public programs
- Calculated suffering, reduced quality of life - \$450 billion

## **Crime Victimization Financial Loss to Victims (1987-90)**

Crime	Tangible Costs	Intangible Costs	Total
murder	\$1,030,000	1,910,000	2,940,000
Sexual assault	5,100	81,400	86,500
robbery	5,200	13,800	19,000
Assault or attempt	1,550	7,800	9,350
Burglary	1,110	300	1400

# **Importance of non-monetary concerns** (Miller, Cohen & Wierseman, 1996)

- Prison cell is \$15-20,000 annually
- Attempted rape costs
  - \$5,100 in direct and indirect costs for mental/medical
  - But if QOL \$87,000

# Work Performance & Productivity

- PTSD, like most disorders, produced a greater effect on productivity than on absenteeism (Kessler & Frank, 1997)
- Sick days & Trauma (e.g., Marmar et al., 1996; Zatzick et al., 1997)
- Productivity estimates from NIJ study
  - Short term productivity (< few month) losses for assault to be \$356
- Area in relative infancy

# Education Costs?

- Early-onset psychiatric disorders may result in truncated educational attainment (Kessler et al, 1995)
- Correlations between PTSD/DV and educational attainment
- IQ/Cognitive functioning and exposure in adults and children (e.g., Saigh, Mroueh & Bremner, 1997; Delaney-Black et al., 1996; Diamond, Muller, Rondeau & Rich, 2001)
- How do we examine the cost of PTSD regarding educational productivity?

# Conclusions

- Demonstrated that data shows trauma and PTSD are costly
  - Although infancy – Medical Costs are quite compelling
  - Other costs also suggest what we are discussing
- Costs are complicated to consider
  - Methodological issue
  - Value issues
  - Policy issues

# How do we reduce medical costs?

- Access to insurance
- One system of care might help to track and consolidate cost
- As Schnurr & Green (2004)- Small interventions can reverse downward spiral (Schnurr & Green, 2004)
  - Effective screenings

# Research directions

- Increase sophistication of studies
  - Multidisciplinary teams
  - Dissemination and collaboration with health and policy economists - training
  - Confronting our fears about policy
- Multiple systems and stakeholders in cost analysis
  - Try to get systems to share data to look at this